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PETROLEUM AND PETROLEUM PRODUCTS IN MONTANA

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**Prepared by
Department of Environmental Quality
for the
Environmental Quality Council**

Report Author: Paul Cartwright

The chance that foreign events will disrupt the petroleum markets is growing. Though the sources of the petroleum products used in Montana are relatively secure, Montana is part of an international market. Price changes in that market are quickly reflected in the Montana market. Steep increases in the price of petroleum products will affect all Montanans. This report provides the background information the Legislature and the public may need to respond to energy disruptions that may occur.

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PETROLEUM AND PETROLEUM PRODUCTS IN MONTANA

Montana Petroleum Quick Facts

(in round numbers)

Recent production: 16 million barrels per year

Amount of crude production exported: 75 percent

Refineries in state: Billings (2), Laurel, Great Falls

Crude receipts at refineries: 57 million barrels per year

Source of crude refined in state:

Montana – 6 percent

Alberta – 73 percent

Wyoming – 20 percent

Amount of liquid fuel refined products exported: 60 percent

States petroleum products are exported to:

Washington

North Dakota

Wyoming (and points south)

Montana consumption of petroleum products: 31 million barrels (includes refinery usage)

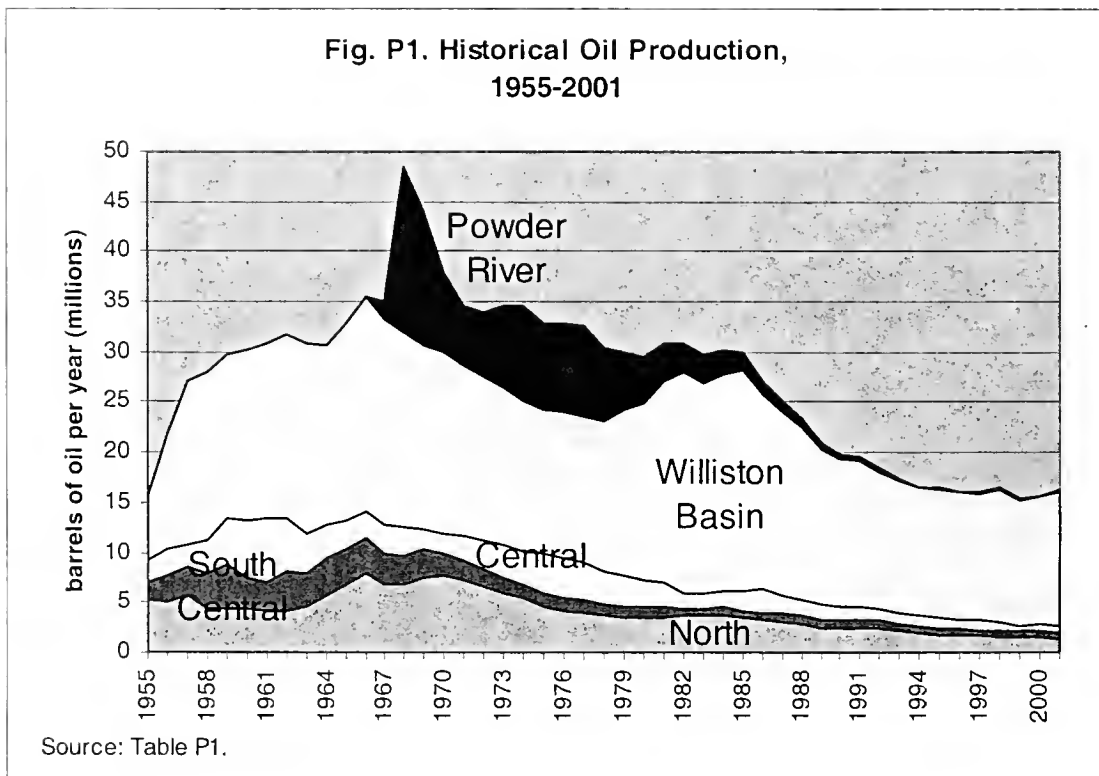
Gasoline sold in-state: 500 million gallons

1. Production History

The first oil wells drilled in Montana were located in the Butcher Creek drainage between Roscoe and Red Lodge, beginning in 1889. These wells were not very successful. The first significant oil production in the state came from wells drilled in the northward extension of Wyoming's Elk Basin field in 1915, southeast of Belfry. Montana's first new oil field was Cat Creek, near Winnett, discovered in 1920, soon followed by the Kevin Sunburst field discovery in 1922. Over the next 40 years, more oil fields were developed in the Williston Basin (northeast Montana), the Sweetgrass Arch (northern Montana), the Big Snowy Uplift (central Montana), the northern extensions of Wyoming's Big Horn Basin (south central Montana) and the Powder River Basin (southeastern Montana).

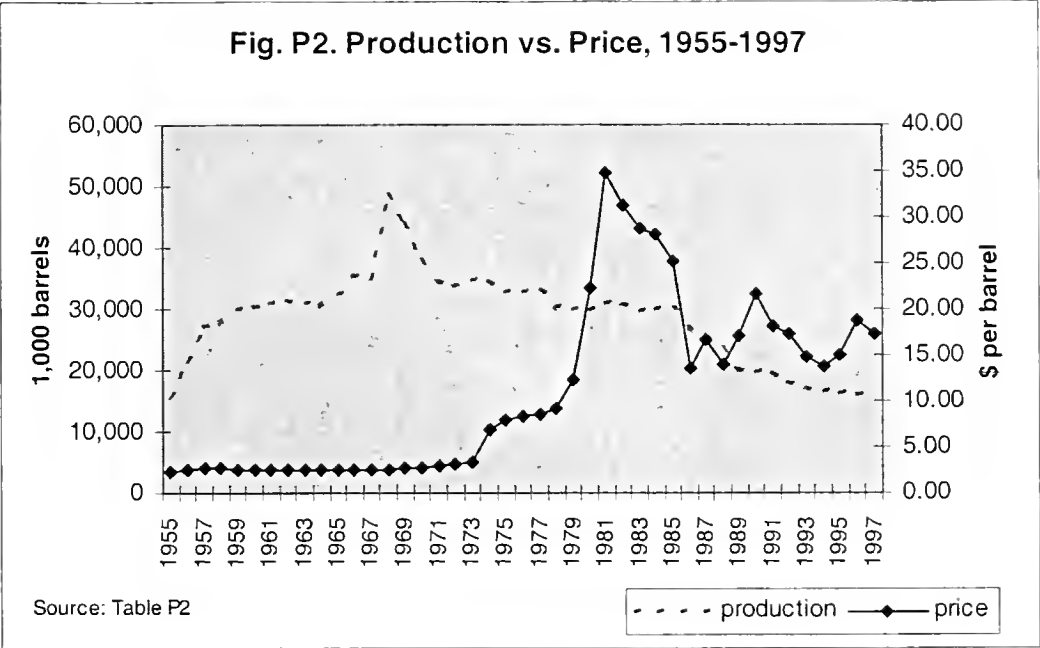
Montana's petroleum production peaked in 1968 at 48.5 million barrels (1 barrel = 42 gallons), the result of cresting Williston Basin production combined with a surge of production from the newly discovered Bell Creek field in the Powder River Basin (Table P1; Fig. P1, below). Production then declined quickly until 1971, when a series of world oil supply shocks began to push prices upward, stimulating more drilling. Production remained relatively stable between 1971 and 1974 as Powder River Basin output increased to match a decline in Williston Basin output. After 1974 production began to decline, despite the continued escalation of oil prices (Table P2).

Figure P1. Historical Oil Production 1955-2001



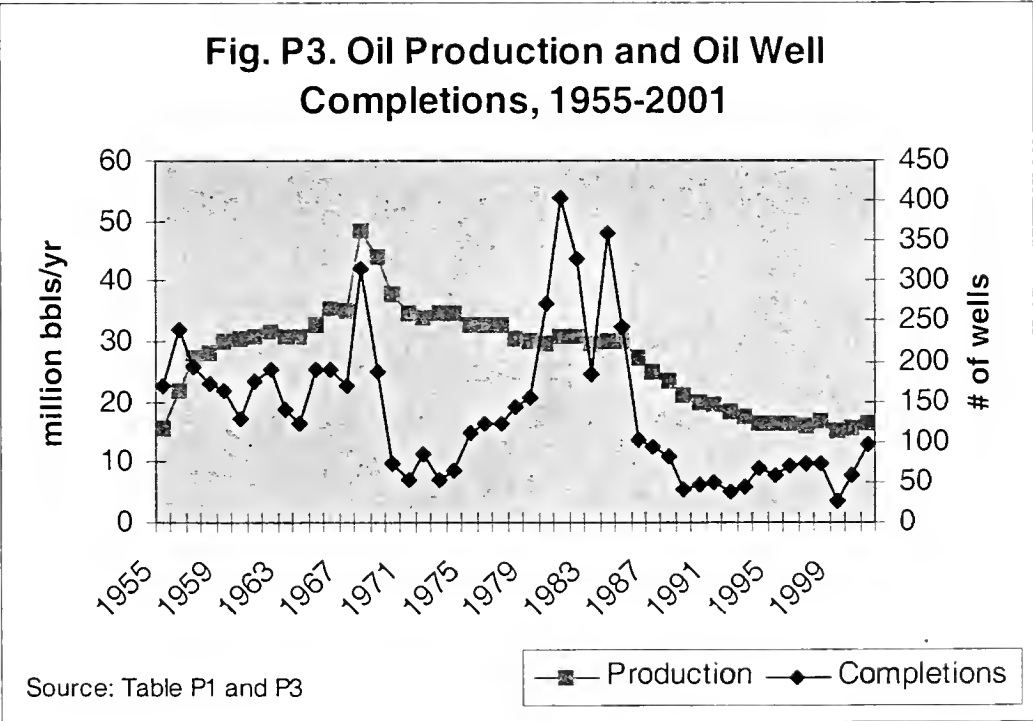
World oil price shocks following the Iran crisis in 1979 sparked a drilling boom, which peaked at 1,149 new wells of all types in 1981 (Table P3). That year, the average price of Montana crude climbed to almost \$35 per barrel. While the increase in the price of oil encouraged more drilling, it did little to increase Montana production (Fig. P2).

Figure P2. Production vs. Price, 1955-1997



The drilling produced a high percentage of dry holes and was unable to slow the decline in statewide production (Fig. P3).

Figure P3. Oil Production and Oil Well Completions, 1955-2001



Output increased in the Williston Basin during the early 1980s, but this was matched by a steep decline in output from other areas. Production declined significantly following the drop in world oil prices in 1985, stabilizing around 16 million barrels per year in the mid-1990's. Wells in Montana are not that prolific, averaging around 15 barrels per day in recent years (Table P1).

2. Refineries and Pipelines

Petroleum pipelines serving Montana consist of three separate systems (see Map, below.) One bridges the Williston and Powder River basins in the east and the other two link the Sweetgrass Arch, Big Snowy and Big Horn producing areas in central Montana. (A fourth—Express—primarily carries Canadian crude through Montana.) All these systems also move crude oil from Canada to Montana and Wyoming. In recent years, 75-80 percent of Montana oil production has been exported from the state, mostly to Wyoming through the eastern pipeline system. This pipeline system is not connected to any of the Montana refineries, which limits the amount of Montana crude they can use.

Montana refineries now use around 57 million barrels of crude a year (Table P4). In the last decade, only 5-10 percent of that came from Montana crude. Oil fields in the Sweetgrass Arch, Big Snowy and Big Horn areas provided crude to the four Montana refineries: Cenex in Laurel, Montana Refining in Great Falls, ConocoPhillips and ExxonMobil in Billings. Collectively, 70-75 percent of their crude oil came from Alberta, Canada and around 20 percent came from Wyoming. The shipments from Canada have increased since the late 1960s, as Montana oil production and imports of Wyoming crude declined. (Fig. P4, below)

MAP: Petroleum Pipelines in Montana

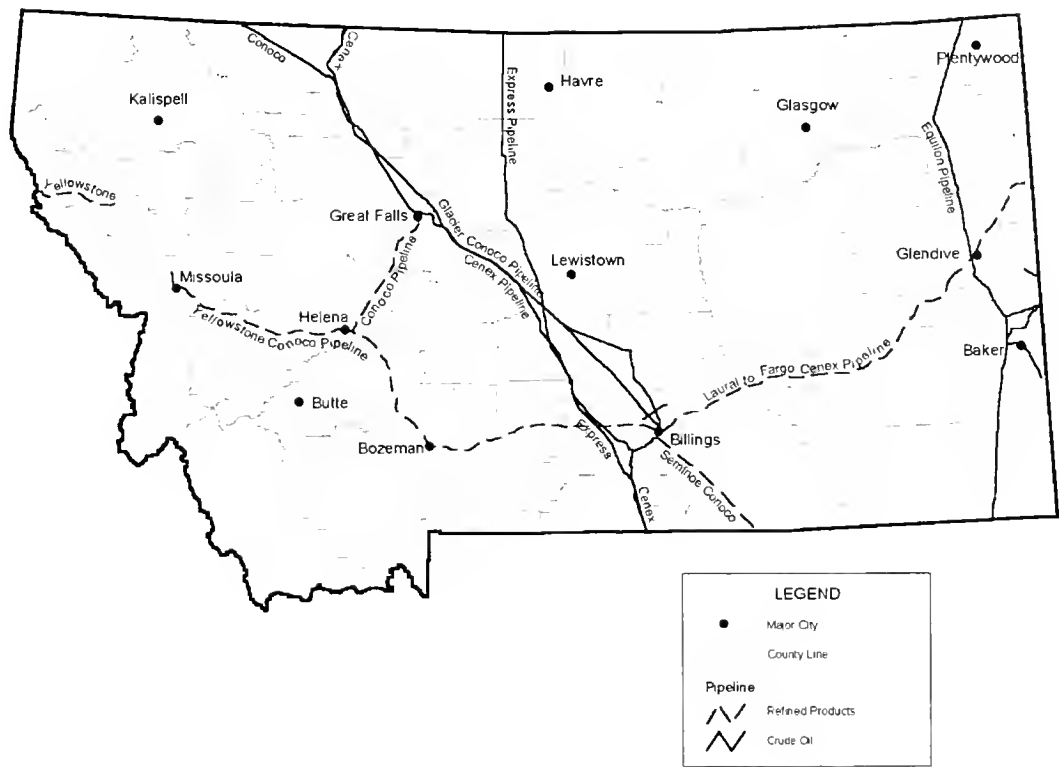
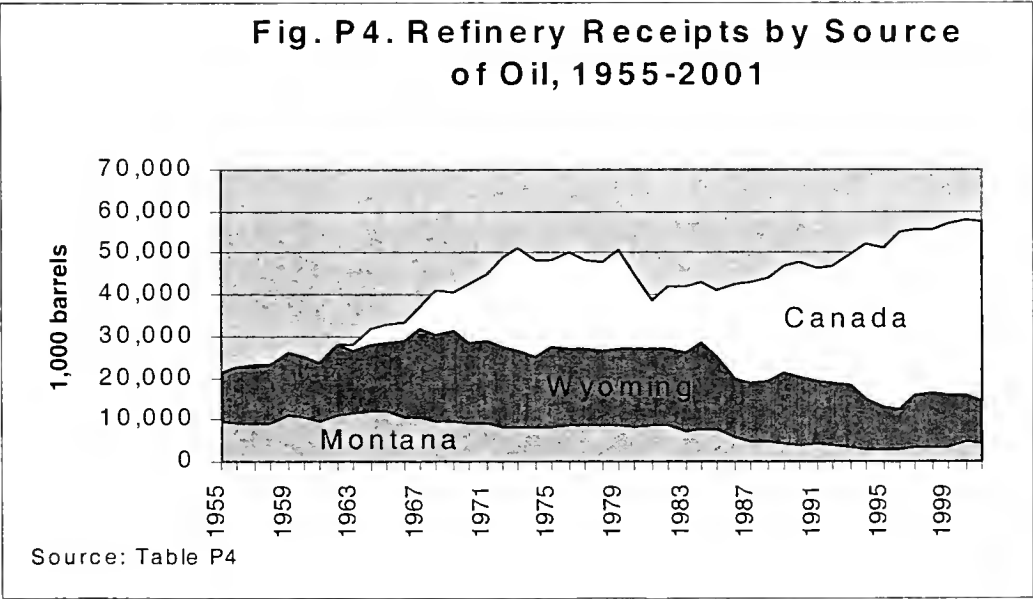


Figure P4. Refinery Receipts by Source of Oil, 1955-2001



The refineries vary in their sources of crude inputs (Table P5). ConocoPhillips is the most dependent on Canadian crude, taking an average (1996-2001) of 94 percent of its total receipts from Canada. ExxonMobil is the least dependent on Canadian crude (39 percent of receipts) but by far the most dependent on Wyoming (53 percent of receipts).

Almost all of refinery output is moved by pipeline. Montana refineries ship their products to Montana cities and east to Fargo, North Dakota (Cenex pipeline), to Wyoming and further south (Conoco Seminoe pipeline) and west to Spokane and Moses Lake, Washington (Conoco Yellowstone pipeline). In 2001, 29 million barrels of product were shipped out of state, in roughly similar portions on each pipeline, with the largest portion heading south.

The four refineries provided almost all of the petroleum products consumed in Montana. Beyond that, around 55-60 percent of the liquid fuel produced at the refineries is exported. Montana refineries provided about 10% of Washington's gasoline and distillate in 2001. That same year, North Dakota received over half its gasoline and distillate from Montana refineries.

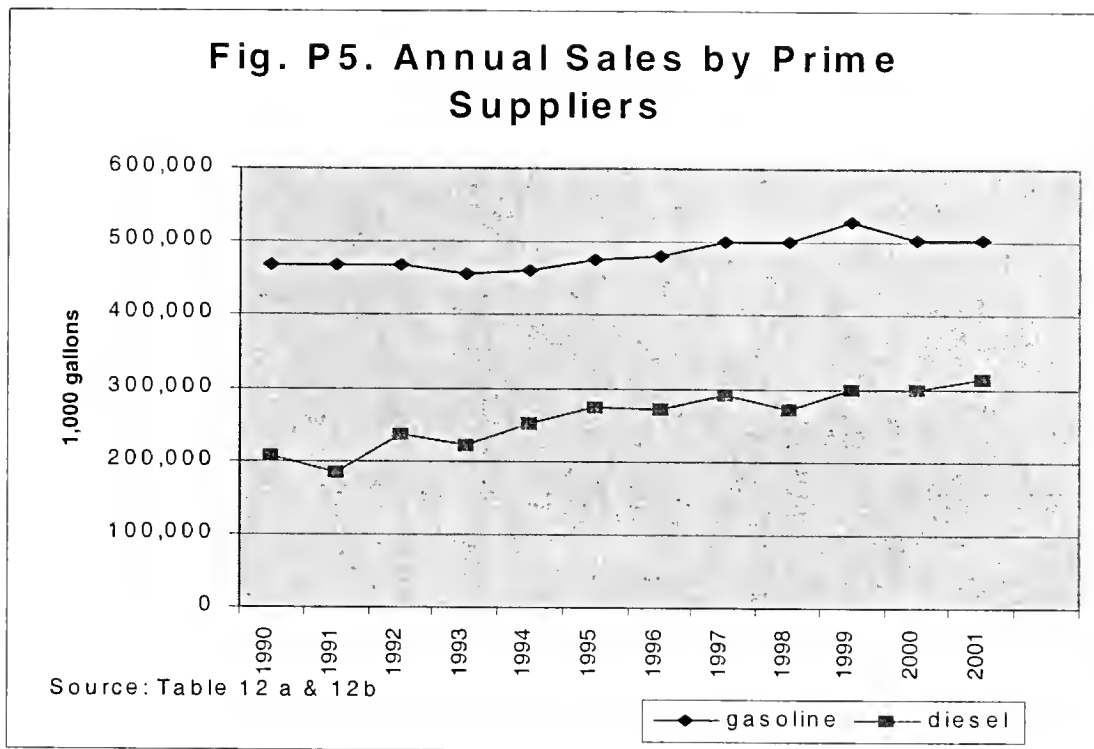
3. Petroleum Products Consumption

Petroleum product consumption in Montana peaked at 33 million barrels in 1979 (Table P6). It then drifted lower, settling in the mid-1980's around 24 million barrels per year. After that, consumption began a slow climb, to around 31 million barrels per year at present.

The transportation sector is the single largest user of petroleum and the second largest user of all forms of energy in Montana. In 1999, 38 percent of consumption was in the form of motor gasoline, 28 percent was distillate, mostly diesel fuel, and 9 percent was asphalt and road oil. Another 19 percent was consumed in petroleum industry operations (Table P6).

Gasoline use peaked in 1978, at half a billion gallons, dropped and slowly climbed back to around that level currently, with minor fluctuations since the mid-1990s (Tables P10 and P11). Diesel use generally has increased since the 1970's, though use may be flattening out now. During the 1990's, highway diesel use grew at a far greater rate than did gasoline use (Tables P11; Fig. P5, below).

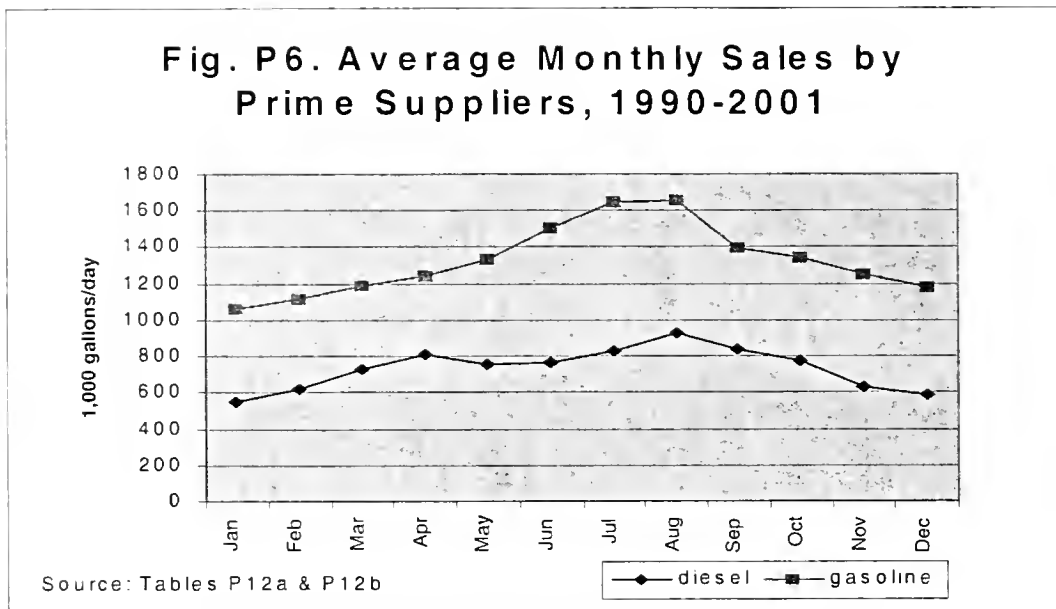
Figure P5. Annual Sales by Prime Suppliers



The fluctuations in demand for gasoline and diesel fuel since 1970 reflect changes in the state and national economy and the international price of oil. The embargo by the Organization of Petroleum Exporting Countries (OPEC) in 1973-1974 and the Iranian crisis of 1979-1980 drove prices up and demand down. The increase in prices prompted advances in vehicle efficiency and a fuel switch by heavy-duty trucks from gasoline to diesel. The crash in international prices in 1985, the economic growth of the 1980's and 1990's, along with the decline in vehicle fleet fuel efficiency in recent years pushed gasoline and diesel demand back up.

Fuel use shows a cyclical rise and fall through the year (Tables 12a and 12b; Fig. P6, below). Use tends to rise during the summer months and taper off during the winter. Diesel use also shows a modest peak in the spring, and a greater one at the end of the summer, possibly due to agricultural sector use. The winter trough in fuel use is more than a third lower from the summer peak. This seasonal pattern is caused both by variations in the use of Montana's one million vehicles and by the increase in tourist traffic during the summer.

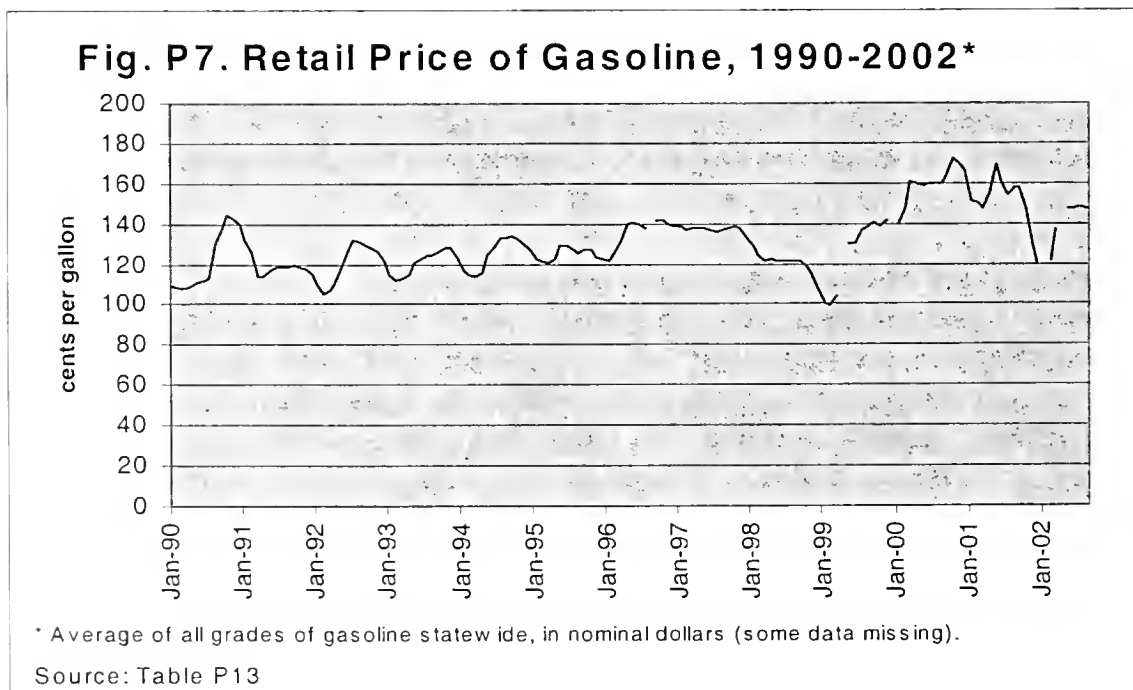
Figure P6. Average Monthly Sales by Prime Suppliers, 1990-2001



Note: Prime suppliers are those who provide product to local distributors or retailers.

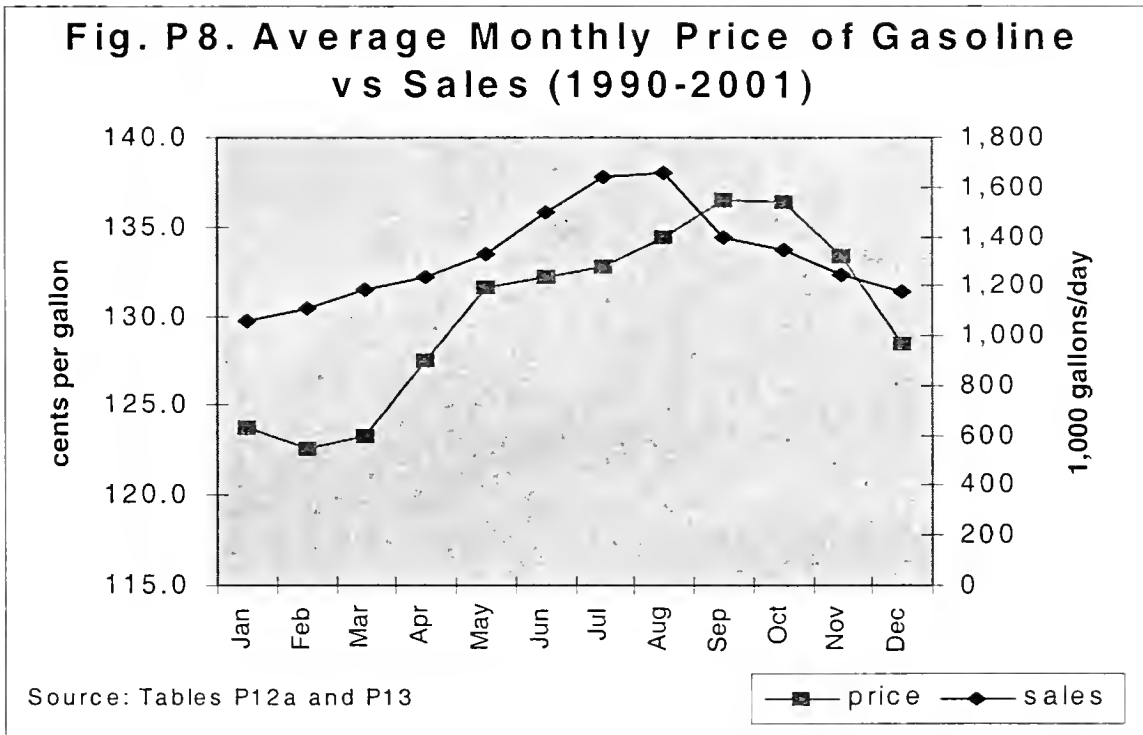
The price of gasoline has been rising over the last decade, most significantly in the last few years (Table P13 and P14; Fig. P7)

Figure P7. Retail Price of Gasoline, 1990-2002



The price of gasoline can vary significantly around the state, a fact that is masked by the data, which only are available as statewide averages. (Complete data on the Montana price of diesel were not available.) The price of gasoline has a cyclical rise and fall, just like demand for gasoline; however, price lags demand, with peak prices tending to appear after the peak driving season (Fig. P8).

Figure P8. Average Monthly Price of Gasoline vs. Sales, 1990-2001



4. Comments on the data

Data for this report come from a variety of sources, which don't always agree exactly. In part this is due to slightly different data definitions and methods of data collection. The reader should always consider the source and context of specific data.

Table P1. Average Daily Oil Production per Well and Annual Production by Region, 1955-2001

Year	Average Daily Production per Well (barrels)					Oil Production by Region (barrels)					Powder River Basin	
	North	South	Central	Williston Basin	STATE AVERAGE	North	South	Central	Williston Basin	Powder River Basin	TOTAL	
1955	4.8	55.3	33.6	90.1	12.6	5,214,926	1,896,630	2,160,479	6,382,391		15,654,426	
1956	4.7	73.5	33.4	102.5	16.5	5,083,953	2,585,437	2,610,047	11,480,124		21,759,561	
1957	4.9	76.3	29.5	118.9	19.4	5,632,616	2,867,658	2,301,145	16,320,543		27,121,962	
1958	3.8	96.4	35.4	103.3	19.6	4,348,256	3,590,554	3,201,003	16,816,816		27,956,629	
1959	3.8	123.7	46.5	99.3	21.1	4,307,739	4,514,034	4,515,489	16,497,964		29,835,226	
1960	4.2	88.1	52.3	93.9	22.3	4,332,218	3,087,871	5,780,420	17,039,406		30,239,915	
1961	4.7	97.9	53.8	89.3	25.0	4,211,017	2,895,587	6,367,524	17,431,916		30,906,044	
1962	4.5	119.9	43.4	76.3	23.5	4,252,304	3,851,672	5,279,163	18,264,368		31,647,507	
1963	4.9	113.4	34.8	74.4	23.2	4,530,510	3,383,587	3,950,490	19,005,066		30,869,653	
1964	7.4	115.1	28.8	65.7	25.2	5,705,948	3,699,927	3,269,768	17,971,855		30,647,498	
1965	9.1	97.6	25.5	70.9	23.6	6,826,261	3,597,647	2,849,923	19,504,287		32,778,118	
1966	9.5	87.7	24.7	73.6	27.6	7,991,302	3,392,890	2,710,194	21,285,732	1,671,277	34,959,026	
1967	8.8	90.7	27.5	69.9	28.2	6,758,280	3,181,132	2,872,604	20,475,733	16,572,472	48,460,246	
1968	9.9	79.6	26.4	67.6	39.0	6,883,493	2,885,272	2,728,357	19,390,652	13,248,737	43,954,112	
1969	11.3	69.5	22.6	66.4	36.1	7,557,966	2,739,346	2,011,445	18,396,618	7,843,259	37,878,697	
1970	11.6	69.3	26.2	66.8	32.3	7,680,831	2,329,187	1,915,273	18,110,147	5,961,116	34,598,723	
1971	11.3	57.9	29.4	62.4	30.1	7,292,476	2,028,304	2,274,124	17,042,703	6,335,666	33,904,139	
1972	9.8	57.4	34.4	63.3	29.6	6,646,908	1,742,749	2,817,045	16,361,771	8,181,598	34,620,182	
1973	9.5	50.0	36.2	60.8	31.7	5,948,826	1,515,088	3,238,967	15,735,703	9,383,064	34,553,962	
1974	8.3	45.6	34.2	57.4	30.5	5,464,319	1,432,528	3,334,759	14,939,292	8,706,862	32,843,674	
1975	6.0	36.1	35.8	53.4	26.2	4,551,324	1,318,779	3,954,024	14,312,685	8,807,439	32,814,260	
1976	5.8	35.1	35.2	53.8	27.1	4,200,539	1,246,005	4,063,897	14,496,380	9,110,037	32,680,054	
1977	5.6	30.4	29.4	50.8	26.2	4,060,957	1,210,064	3,677,361	14,621,635	7,252,869	30,467,337	
1978	4.9	26.1	26.4	48.9	23.5	3,671,322	1,095,737	3,343,556	15,103,853	5,713,032	29,957,099	
1979	4.6	27.7	24.4	51.2	22.9	3,536,296	1,131,798	3,029,397	16,546,576	4,660,659	29,583,804	
1980	4.3	23.2	19.9	48.7	21.1	3,516,807	1,055,105	2,612,091	17,739,142	3,759,760	30,813,411	
1981	4.3	18.9	20.0	50.6	21.0	3,605,207	910,595	2,583,690	19,954,159	2,999,247	30,917,311	
1982	4.1	16.0	16.5	44.2	19.2	3,680,043	806,366	1,496,895	21,934,760	2,847,618	29,665,280	
1983	3.7	14.4	14.0	39.6	16.9	3,682,130	790,150	1,467,855	20,877,527	2,383,476	30,079,819	
1984	3.9	15.8	15.9	37.9	17.0	3,708,185	829,090	1,709,653	21,449,415	1,744,433	29,850,417	
1985	3.3	16.3	12.3	39.1	16.0	3,419,300	838,817	1,868,780	21,979,087	1,314,374	27,164,630	
1986	2.9	24.7	14.4	35.4	14.2	3,220,769	722,118	2,387,266	19,520,103	1,069,179	25,104,049	
1987	2.9	17.4	13.9	35.1	14.1	3,040,941	827,229	1,847,551	18,319,149	878,887	23,317,456	
1988	2.7	18.9	13.0	32.6	13.2	2,779,524	884,954	1,684,853	17,089,238	686,228	20,969,292	
1989	2.6	16.2	12.8	30.8	12.5	2,488,169	773,372	1,544,989	15,476,534	550,211	19,835,087	
1990	2.6	16.4	12.3	29.5	12.0	2,432,506	805,807	1,454,066	14,592,497	485,881	19,573,348	
1991	2.7	17.9	12.3	29.4	12.2	2,510,130	804,003	1,393,046	14,380,288	355,139	18,479,672	
1992	2.6	16.5	11.7	27.8	11.5	2,426,783	832,580	1,227,475	13,637,695	272,517	17,395,561	
1993	2.4	17.4	10.1	27.9	11.4	2,143,943	772,668	1,095,551	13,110,882	90,965	16,530,980	
1994	2.4	14.8	9.6	26.6	11.0	2,003,272	733,965	955,703	12,747,075	126,524	16,525,824	
1995	2.3	14.5	11.4	26.9	11.9	1,783,331	698,537	1,040,127	12,877,305	125,797	16,175,201	
1996	3.2	17.6	13.7	31.8	15.3	1,740,101	657,135	955,626	12,696,542	180,142	16,134,303	
1997	3.2	15.9	13.5	31.4	15.2	1,691,825	603,422	991,714	12,667,200	236,190	16,622,702	
1998	3.1	15.4	12.7	33.6	16.2	1,590,323	582,568	828,028	13,385,593	207,560	15,328,550	
1999	3.1	17.7	11.5	31.6	15.6	1,502,304	607,414	638,415	12,372,857	210,281	15,746,141	
2000	3.0	18.8	11.2	30.4	14.9	1,545,508	696,733	725,437	12,568,182	170,592	16,271,952	
2001	2.7	16.3	10.4	31.0	15.2	1,419,842	656,668	650,982	13,373,868			

SOURCE: Montana Department of Natural Resources and Conservation, Oil and Gas Division, *Annual Review, 1955-2001*.

Table P2. Crude Oil Production and Average Wellhead Prices¹, 1955-2002

DNRC Statistics			
Year	Crude Oil Production (Mbbbls)	Average Wellhead Price (\$/bbl)	Gross Value of Production (million \$)
1955	15,654	2.26	35.4
1956	21,760	2.45	53.3
1957	27,122	2.66	72.1
1958	27,957	2.65	74.1
1959	29,857	2.53	75.5
1960	30,240	2.41	72.9
1961	30,906	2.42	74.8
1962	31,648	2.42	76.6
1963	30,870	2.44	75.3
1964	30,647	2.43	74.5
1965	32,778	2.43	79.7
1966	35,380	2.44	86.3
1967	34,959	2.50	87.4
1968	48,460	2.57	124.5
1969	43,954	2.69	118.2
1970	37,879	2.78	105.3
1971	34,599	3.01	104.1
1972	33,904	3.06	103.7
1973	34,620	3.33	115.3
1974	34,554	6.85	236.7
1975	32,844	7.83	257.2
1976	32,814	8.42	276.3
1977	32,680	8.63	282.0
1978	30,467	9.25	281.8
1979	29,957	12.39	371.2
1980	29,584	22.24	657.9
1981	30,813	34.73	1070.1
1982	30,917	31.26	966.5
1983	29,665	28.79	854.1
1984	30,080	28.04	843.4
1985	29,934	25.23	755.2
1986	27,165	13.52	367.3
1987	25,104	16.62	417.2
1988	23,317	13.87	323.4
1989	20,269	17.08	358.2
1990	19,835	21.58	428.0
1991	19,573	18.18	355.9
1992 ²	18,237	17.20	313.7
1993 ²	17,327	14.78	256.1
1994 ²	16,425	13.68	224.7
1995 ²	16,170	14.96	241.9
1996 ²	15,957	18.81	300.2
1997 ²	16,233	17.22	279.6
1998			
1999			
2000			
2001			

DOR Statistics			
Fiscal Year	Crude Oil Production (Mbbbls)	Average Wellhead Price (\$/bbl)	Gross Value of Production (million \$)
FY1995	16,448	14.60	240.1
FY1996	15,695	15.60	244.8
FY1997			
FY1998			
FY1999			
FY2000			
FY2001	15,736	27.40	431.2
FY2002	16,603	20.56	341.4

¹ Average wellhead prices were computed by dividing the gross value of production by the number of barrels extracted.

² Due to a legal opinion on the confidentiality of tax records, the Montana Department of Revenue stopped providing data DNRC used to calculate the average price and valuation for individual fields. The DNRC data published for these years were summaries prepared by DoR. After 1997, DNRC stopped publishing this data table.

NOTE: Some oil production is exempt from state taxation and is not included in DoR's production figures. Wells are classified for tax purposes as either oil or gas wells; only oil from wells classified as oil wells is included in DoR figures. Accordingly, production figures from 1992 on are lower than those shown in Table P1.

SOURCE: Montana Department of Natural Resources and Conservation, Oil and Gas Conservation Division, *Annual Review*, 1955-2001; Montana Department of Revenue, Biennial Report 1994-1996 and DoR files for FY01-02 (Information for intervening years cannot be retrieved from DoR's computer system).

Table P3. Number of Producing Oil Wells by Region and Number of Oil and Gas Wells Drilled by Type, 1955-2001

Year	Number of Producing Oil Wells						Number of Wells Drilled											TOTAL
	Powder River						Development					Exploratory						
							Dry		Service	Sub-	Dry			Sub-				
	South	Williston	Basin	Basin	TOTAL	Oil	Gas	Holes	Wells	Total	Oil	Gas	Holes	T.A. ¹	Total			
North	Central	Central	Basin	Basin	TOTAL	Oil	Gas	Holes	Wells	Total	Oil	Gas	Holes	T.A. ¹	Total	TOTAL		
1955	2,950	94	176	194		3,414	158	21	69		248	11	4	145		160	408	
1956	2,969	96	213	306		3,584	229	6	75		310	12	0	171		183	493	
1957	3,130	103	214	376		3,823	182	17	57		256	12	2	162		176	432	
1958	3,120	102	248	446		3,916	159	7	46		212	12	2	109		123	335	
1959	3,067	100	266	455		3,888	156	12	71		239	7	6	101		114	353	
1960	2,811	96	303	497		3,707	114	4	58		176	14	3	150		167	343	
1961	2,447	81	324	535		3,387	169	6	60		235	7	2	173		182	417	
1962	2,615	88	333	656		3,692	182	16	57		255	8	2	154		164	419	
1963	2,550	82	310	700		3,642	131	6	60		197	8	5	152		165	362	
1964	2,216	88	317	708		3,329	100	7	109		216	22	3	150		175	391	
1965	2,649	101	306	754		3,810	177	9	107		293	14	1	199		214	507	
1966	2,308	106	301	792		3,507	179	9	96		284	10	3	185		198	482	
1967	2,097	96	286	802	109	3,390	162	14	104		280	7	5	191		203	483	
1968	1,898	99	282	784	328	3,391	300	14	89		403	15	13	509		537	940	
1969	1,827	108	244	759	397	3,335	171	44	105		320	15	5	466		486	806	
1970	1,806	92	200	743	371	3,212	60	30	63		153	12	11	272		295	448	
1971	1,768	96	212	748	321	3,145	49	36	34		119	3	22	323		348	467	
1972	1,856	83	224	706	265	3,134	79	97	87		263	7	19	435		461	724	
1973	1,708	83	245	709	248	2,993	46	165	100		311	6	36	366		408	719	
1974	1,802	86	267	712	233	3,100	58	179	212		449	7	21	265		293	742	
1975	2,067	100	303	734	231	3,435	105	261	222		588	6	15	236		257	845	
1976	1,978	97	316	737	181	3,309	106	264	169		539	17	8	223		248	787	
1977	1,999	109	343	789	178	3,418	98	220	188		506	24	19	129		172	678	
1978	2,052	115	347	863	169	3,546	123	223	232		578	21	15	179		215	793	
1979	2,089	112	340	886	165	3,592	120	235	182		537	35	20	211		266	803	
1980	2,212	124	358	996	148	3,838	241	203	206		650	30	12	260		302	952	
1981	2,280	132	354	1,080	174	4,020	276	133	188		597	126	85	341		552	1,149	
1982	2,455	138	249	1,360	212	4,414	263	145	120	19	547	64	46	248		358	905	
1983	2,693	150	287	1,446	222	4,798	160	55	88	10	313	25	16	156	23	220	533	
1984	2,610	144	294	1,577	214	4,839	327	99	87	20	533	33	21	189	25	268	801	
1985	2,803	141	417	1,540	216	5,117	227	84	90	18	419	16	2	192	11	221	640	
1986	3,017	80	453	1,509	184	5,243	90	81	69	4	244	11	10	130	10	161	405	
1987	2,850	130	363	1,430	112	4,885	86	75	39	21	221	7	9	100	11	127	348	
1988	2,821	128	355	1,434	103	4,841	72	54	46	12	184	10	19	100	9	138	322	
1989	2,644	131	331	1,377	112	4,595	32	115	29	8	184	8	12	38	0	58	242	
							Oil	Gas	CBM ²	Storage	EOR ³ Injection	Disposal	Dry	Other	Total			
1990	2,579	135	323	1,356	118	4,514	44	192	0	2	4	1	92	0	335			
1991	2,534	123	310	1,338	79	4,384	50	155	4	2	3	0	62	1	277			
1992	2,568	138	287	1,338	69	4,400	38	154	0	3	0	2	66	4	267			
1993	2,408	122	298	1,287	56	4,171	44	78	0	1	5	0	46	1	175			
1994	2,324	136	272	1,311	71	4,114	66	102	0	7	2	2	77	4	260			
1995	2,093	132	249	1,310	28	3,812	58	88	0	2	1	2	53	6	210			
1996	2,020	120	242	1,271	49	3,702	71	66	0	2	7	2	50	0	198			
1997	1,963	117	235	1,298	73	3,686	74	224	10	0	8	3	74	0	393			
1998	1,912	118	236	1,292	82	3,640	72	144	21	0	10	1	65	3	316			
1999	1,831	119	225	1,264	70	3,509	25	235	111	3	19	0	63	1	457			
2000	1,863	126	229	1,304	76	3,598	58	286	77	6	3	0	57	0	487			
2001	1,824	131	220	1,344	61	3,580	95	276	48	1	11	3	81	0	515			

¹ T.A. - Temporarily abandoned.

² CBM - Coalbed Methane

³ EOR - Enhanced Oil Recovery

NOTE: The Montana Board of Oil and Gas recently revised its record keeping procedures. The data for wells drilled since 1990 supercede those in the previous Annual Reviews. After 1990, the number of wells drilled no longer is broken out by "Development" and "Exploratory."

SOURCE: Montana Department of Natural Resources and Conservation, Oil and Gas Division, *Annual Review*, 1955-2001.

Permit Data 1990-2001: Board of Oil and Gas Live Data Access, November 15, 2002 <http://bogc.dnrc.state.mt.us/OnlineData.htm>.

Table P4. Refinery Receipts by Source of Crude Oil, 1955-2001 (thousand barrels)

Year	MONTANA		WYOMING		CANADA		NORTH DAKOTA		TOTAL ¹
	Crude Oil	Percent of Total	Crude Oil	Percent of Total	Crude Oil	Percent of Total	Crude Oil	Percent of Total	
1955	9,858	46.8	11,210	53.1	0	0.0			21,081
1956	9,053	39.6	13,720	60.0	88	0.4			22,861
1957	9,222	40.1	13,665	59.5	92	0.4			22,979
1958	9,165	39.4	14,089	60.5	12	0.1			23,265
1959	10,913	41.9	15,141	58.1	4	0.0			26,059
1960	10,531	42.3	14,383	57.7	21	0.1			24,935
1961	9,797	41.0	14,038	58.8	33	0.1			23,869
1962	11,175	39.7	16,708	59.4	266	0.9			28,149
1963	11,798	42.0	14,745	52.5	1,553	5.5			28,097
1964	12,292	38.4	15,714	49.1	4,002	12.5			32,007
1965	11,971	36.2	16,416	49.7	4,654	14.1			33,041
1966	10,626	31.8	18,120	54.2	4,684	14.0			33,429
1967	10,632	28.7	21,393	57.7	5,052	13.6			37,078
1968	9,690	23.7	20,915	51.0	10,347	25.2			40,951
1969	9,465	23.4	22,130	54.7	8,843	21.9			40,438
1970	9,080	21.5	19,342	45.7	13,908	32.8			42,330
1971	9,262	20.6	19,732	43.8	16,003	35.6			42,997
1972	8,194	16.9	19,241	39.6	21,156	43.5			48,591
1973	8,437	16.6	18,235	35.8	24,295	47.7			50,967
1974	7,989	16.6	16,949	35.3	23,115	48.1			48,053
1975	8,002	16.6	19,465	40.4	20,690	43.0			48,157
1976	8,517	16.9	18,311	36.4	23,494	46.7			50,322
1977	8,928	18.5	18,248	37.8	20,921	43.3	200	0.4	48,297
1978	8,848	18.5	17,513	36.6	21,369	44.7	69	0.1	47,739
1979	8,668	17.1	18,368	36.3	23,578	46.6	6	0.0	50,620
1980	8,016	17.9	19,050	42.6	17,627	39.4	25	0.1	44,719
1981	8,691	22.4	18,298	47.2	11,797	30.4	14	0.0	38,801
1982	8,653	20.5	18,178	43.0	15,402	36.5		0.0	42,234
1983	7,120	16.9	19,183	45.7	15,584	37.2	45	0.1	41,932
1984	7,821	18.2	20,552	47.9	14,516	33.8	55	0.0	42,945
1985	7,804	19.0	17,258	41.9	16,075	39.1	10	0.0	41,149
1986	6,019	14.1	13,795	32.4	22,778	53.5			42,593
1987	4,993	11.6	13,758	31.9	24,396	56.5			43,147
1988	4,607	10.5	14,907	34.0	24,306	55.5			43,820
1989	4,475	9.6	16,675	35.8	25,480	54.6			46,630
1990	4,057	8.5	16,431	34.4	27,271	57.1			47,760
1991	4,272	9.2	15,031	32.5	26,991	58.3			46,294
1992	3,907	8.3	14,820	31.6	28,110	60.0			46,837
1993	3,395	6.9	15,116	30.5	30,977	62.6			49,489
1994	3,109	5.9	11,865	22.7	37,383	71.4			52,357
1995	3,042	5.9	10,074	19.6	38,266	74.5			51,381
1996	3,033	5.5	9,686	17.5	42,549	77.0			55,269
1997	3,178	5.7	12,840	23.2	39,296	71.0			55,314
1998	3,203	5.7	13,067	23.5	39,449	70.8			55,719
1999	3,162	5.6	12,623	22.2	40,986	72.2			56,772
2000	4,829	8.4	10,868	18.8	42,117	72.8			57,815
2001	4,349	7.6	10,167	17.7	42,950	74.7			57,465

¹ Includes 13,000 barrels from South Dakota in 1955.

NOTE: Data originally reported by the Montana Oil and Gas Conservation Division have been revised on the basis of further information received from individual refineries. The Oil and Gas Conservation Division data originally understated Canadian inputs and overstated Wyoming inputs to the Continental Oil refinery, at least for the years 1968-75. Canadian inputs to the Big West Oil and Westco refineries were apparently not reported to the Oil and Gas Conservation Division. Revised data are available only for the years 1972-75, but it is likely that Canadian inputs to these two refineries were significant before 1972.

SOURCE: Montana Department of Natural Resources and Conservation, Oil and Gas Conservation Division, *Annual Review*, 1955-2001.

Table P5. Refinery Receipts by Source of Oil, 1996-2001 (barrels)

Average (1996-2001)	Cenex		Conoco		Exxon		Montana Refining		TOTALS	
Montana	1,428,579	9%	332,362	2%	1,541,400	8%	470,424	21%	3,625,647	6%
Wyoming	934,966	6%	797,437	4%	9,894,895	53%	-	-	11,542,026	20%
Canada	14,188,161	86%	17,979,253	94%	7,279,270	39%	1,805,204	79%	41,224,628	73%
Total Received	16,551,706	100%	19,109,052	100%	18,715,564	100%	2,275,628	100%	56,392,301	100%
2001	Cenex		Conoco		Exxon		Montana Refining		TOTALS	
Montana	1,299,462	7%	101,308	1%	2,570,950	14%	376,851	17%	4,348,571	8%
Wyoming	758,202	4%	642,068	3%	8,766,396	47%	-	-	10,166,666	18%
Canada	15,511,970	88%	18,409,816	96%	7,148,432	39%	1,879,859	83%	42,950,077	75%
Total Received	17,569,634	100%	19,153,192	100%	18,485,778	100%	2,256,710	100%	57,465,314	100%
2000	Cenex		Conoco		Exxon		Montana Refining		TOTALS	
Montana	1,324,090	8%	485,023	2%	3,453,661	17%	449,119	21%	4,829,182	8%
Wyoming	1,530,079	9%	571,760	3%	9,278,031	46%	-	-	10,868,235	19%
Canada	13,569,484	83%	19,659,959	95%	7,311,986	36%	1,739,580	79%	42,117,455	73%
Total Received	16,423,653	100%	20,716,742	100%	20,043,678	100%	2,188,699	100%	57,814,872	100%
1999	Cenex		Conoco		Exxon		Montana Refining		TOTALS	
Montana	1,368,726	8%	298,747	2%	972,330	5%	522,394	22%	3,162,197	6%
Wyoming	1,541,855	9%	670,904	4%	10,410,600	52%	-	-	12,623,359	22%
Canada	13,673,690	82%	16,906,241	95%	8,563,587	43%	1,842,652	78%	40,986,170	72%
Total Received	16,584,271	100%	17,875,892	100%	19,946,517	100%	2,365,046	100%	56,771,726	100%
1998	Cenex		Conoco		Exxon		Montana Refining		TOTALS	
Montana	1,524,879	9%	223,173	1%	811,281	5%	643,397	28%	3,202,730	6%
Wyoming	572,752	3%	1,585,674	8%	10,908,612	61%	-	-	13,067,038	23%
Canada	14,471,664	87%	17,220,914	90%	6,112,547	34%	1,644,159	72%	39,449,284	71%
Total Received	16,569,295	100%	19,029,761	100%	17,832,440	100%	2,287,556	100%	55,719,052	100%
1997	Cenex		Conoco		Exxon		Montana Refining		TOTALS	
Montana	1,535,580	10%	600,006	3%	725,947	4%	316,258	14%	3,177,791	6%
Wyoming	318,086	2%	833,367	4%	11,689,031	64%	-	-	12,840,484	23%
Canada	13,882,187	88%	17,788,440	93%	5,709,115	32%	1,916,027	86%	39,295,769	71%
Total Received	15,735,853	100%	19,221,813	100%	18,124,093	100%	2,232,285	100%	55,314,044	100%
1996	Cenex		Conoco		Exxon		Montana Refining		TOTALS	
Montana	1,518,735	9%	285,917	2%	714,231	4%	514,526	22%	3,033,409	5%
Wyoming	888,823	5%	480,852	3%	8,316,697	47%	-	-	9,686,372	18%
Canada	14,019,969	85%	17,890,145	96%	8,829,952	49%	1,808,948	78%	42,549,014	77%
Total Received	16,427,527	100%	18,656,914	100%	17,860,880	100%	2,323,474	100%	55,268,795	100%

Source: Montana Department of Natural Resources and Conservation *Montana Oil and Gas Annual Review* (1996-2001)

Table P6. Petroleum Product Consumption Estimates, 1960-99 (thousand barrels)

Year	Asphalt and Road Oil	Aviation Gasoline	Distillate Fuel	Jet Fuel	Kerosene	LPG	Lubricants	Motor Gasoline	Residual Fuel	Other ¹	TOTAL
1960	865	1,006	4,898	265	477	737	161	6,922	2,063	1,635	19,028
1961	823	1,427	5,278	280	366	859	157	6,979	2,580	2,023	20,771
1962	786	473	5,549	311	265	819	171	7,553	3,052	2,149	21,127
1963	900	499	5,393	340	359	766	171	7,481	2,852	2,508	21,269
1964	1,328	340	5,702	360	679	925	179	7,374	2,300	2,403	21,590
1965	1,003	312	4,962	384	248	926	189	7,709	1,241	2,531	19,505
1966	974	198	5,695	441	118	1,167	196	7,953	1,459	2,697	20,897
1967	1,066	131	3,394	574	859	1,585	175	8,104	1,231	2,871	19,990
1968	1,221	65	4,113	697	815	1,689	192	8,585	1,509	3,314	22,201
1969	1,189	38	4,641	806	657	1,690	196	8,737	1,556	3,558	23,069
1970	1,347	43	4,827	649	376	1,326	200	9,262	1,268	3,155	22,452
1971	1,337	42	5,715	767	362	1,402	188	9,494	1,262	3,109	23,679
1972	1,489	94	6,206	762	383	1,705	201	10,137	1,469	3,565	26,009
1973	1,397	110	6,989	757	405	1,503	219	10,883	1,765	3,779	27,809
1974	1,222	105	7,840	780	174	1,466	210	10,550	2,262	3,470	28,079
1975	924	79	7,586	818	122	1,370	208	10,630	2,178	3,410	27,325
1976	1,283	94	8,411	753	79	1,421	231	11,605	2,525	3,265	29,667
1977	1,133	92	8,258	772	93	1,368	247	11,100	2,506	3,503	29,072
1978	942	87	8,232	699	95	1,662	266	12,809	2,502	3,493	30,787
1979	1,054	122	9,037	907	17	1,094	278	11,162	5,773	3,298	32,743
1980	1,020	159	7,509	920	0	1,806	247	10,416	4,025	3,007	29,110
1981	1,035	177	6,469	800	26	1,027	237	10,797	2,494	2,721	25,783
1982	884	92	5,828	625	0	1,446	216	10,429	1,608	2,534	23,661
1983	1,130	102	8,863	652	18	1,497	227	10,525	1,306	2,422	26,741
1984	1,215	77	9,446	642	19	1,032	242	10,451	798	2,691	26,614
1985	1,463	91	11,317	678	10	1,576	225	10,188	133	2,512	28,193
1986	1,989	105	7,004	867	22	1,505	220	10,158	47	2,507	24,424
1987	1,642	82	6,556	718	8	1,716	249	10,258	23	3,236	24,489
1988	1,473	107	6,308	809	4	1,515	240	10,441	221	3,624	24,742
1989	1,749	95	7,679	750	3	1,608	246	10,310	182	3,697	26,320
1990	1,487	111	7,422	708	8	1,740	253	10,328	221	4,054	26,332
1991	1,350	108	8,321	615	3	1,053	227	10,360	146	3,568	25,750
1992	1,309	75	7,716	864	1	1,018	231	10,727	89	4,473	26,503
1993	1,707	64	8,004	901	8	2,200	235	10,999	689	3,906	28,712
1994	1,964	75	8,254	855	7	1,055	246	11,097	374	4,327	28,255
1995	1,293	78	8,924	1,052	1	918	242	11,328	240	4,269	28,344
1996	1,702	99	9,818	999	1	1,618	235	11,753	184	4,876	31,284
1997	1,448	71	10,782	792	2	277	248	11,480	165	4,704	29,969
1998	1,594	102	8,586	797	3	271	259	11,596	113	5,281	28,603
1999	2,625	121	8,653	836	2	527	262	11,768	24	5,915	30,735

¹ In Montana "Other Petroleum Products" are used primarily in petroleum industry operations and as refinery fuels.

NOTE: DOE models provide the best consumption estimates available. However, some of the more dramatic year-to-year variation in consumption levels may be due to the models themselves or to changes in the models or data sources.

SOURCE: U.S. Department of Energy, Energy Information Administration, *State Energy Data Report, Consumption Estimates, 1960-99* (DOE/EIA 0214; <http://www.eia.doe.gov/emeu/sedr/contents.html#Data%20Files>).

**Table P7. Residential Petroleum Product Consumption
Estimates, 1960-90 (thousand barrels)**

Year	Distillate	
	Fuel	LPG ¹
1960	262	506
1961	335	616
1962	335	560
1963	328	499
1964	312	655
1965	277	636
1966	286	758
1967	196	994
1968	250	1,068
1969	289	1,072
1970	249	887
1971	397	905
1972	436	1,094
1973	495	965
1974	542	1,026
1975	589	973
1976	646	993
1977	616	993
1978	657	1,276
1979	675	606
1980	421	829
1981	273	503
1982	352	736
1983	449	901
1984	459	428
1985	345	604
1986	351	641
1987	247	709
1988	235	715
1989	366	831
1990	288	813
1991	356	703
1992	218	598
1993	267	548
1994	189	541
1995	252	473
1996	438	519
1997	910	152
1998	461	86
1999	256	342

¹ DOE has numerous caveats on its allocation of LPG consumption to the various sectors.

NOTE: This table excludes a small amount of kerosene consumption, which could not be estimated accurately by DOE models.

DOE models provide the best consumption estimates available. However, some of the more dramatic year-to-year variation in consumption levels may be due to the models themselves or to changes in the models or data sources.

SOURCE: U.S. Department of Energy, Energy Information Administration, *State Energy Data Report, Consumption Estimates, 1960-99* (DOE/EIA 0214) (<http://www.eia.doe.gov/emeu/sedr/contents.html#HTML%20Tables>).

**Table P8. Commercial Petroleum Product Consumption Estimates, 1960-99
(thousand barrels)**

Year	Distillate Fuel	LPG ¹	Motor Gasoline ²	Residual Fuel
1960	297	89	135	2
1961	380	109	146	3
1962	380	99	121	4
1963	372	88	141	4
1964	354	116	127	3
1965	315	112	144	1
1966	324	134	123	1
1967	223	175	135	1
1968	284	188	133	1
1969	329	189	107	1
1970	283	157	220	1
1971	451	160	127	1
1972	496	193	168	1
1973	562	170	136	1
1974	616	181	125	2
1975	668	172	174	2
1976	734	175	163	3
1977	699	175	157	3
1978	746	225	167	4
1979	766	107	179	11
1980	346	146	92	7
1981	380	89	110	0
1982	183	130	127	5
1983	1,104	159	76	172
1984	1,128	75	61	105
1985	863	107	72	126
1986	403	113	76	37
1987	305	125	79	13
1988	199	126	76	9
1989	204	147	77	13
1990	153	143	83	11
1991	204	124	63	3
1992	169	106	55	4
1993	194	97	12	5
1994	189	95	15	3
1995	118	83	13	3
1996	308	92	19	3
1997	215	27	12	1
1998	130	15	14	1
1999	161	60	14	3

¹ DOE has numerous caveats on its allocation of LPG consumption to the various sectors.

² Includes miscellaneous (including unclassified) and public nonhighway sales of motor gasoline.

NOTE: This table does not include kerosene since very little has been consumed in the commercial sector in recent years. DOE models provide the best consumption estimates available. However, some of the more dramatic year-to-year variation in consumption levels may be due to the models themselves or to changes in the models or data sources.

SOURCE: U.S. Department of Energy, Energy Information Administration, *State Energy Data Report, Consumption Estimates, 1960-99* (DOE/EIA 0214; <http://www.eia.doe.gov/emeu/sedr/contents.html#HTML%20Tables>).

Table P9. Industrial Petroleum Product Consumption Estimates, 1960-99
(thousand barrels)

Year	Distillate Fuel ¹	LPG ²	Lubricants	Motor Gasoline ³	Residual Fuel ⁴
1960	1,500	112	23	816	1,684
1961	1,841	104	23	923	1,960
1962	2,159	125	30	685	2,575
1963	2,174	145	30	796	2,438
1964	2,331	128	31	746	1,986
1965	1,693	164	41	887	914
1966	2,123	254	43	681	980
1967	1,033	356	40	791	882
1968	1,222	359	44	745	1,242
1969	1,373	361	45	476	1,212
1970	1,274	246	46	635	1,123
1971	1,750	282	43	570	1,174
1972	1,863	339	46	702	1,390
1973	2,073	302	60	568	1,577
1974	2,413	206	58	503	2,126
1975	2,494	174	46	774	1,963
1976	2,926	202	51	774	2,303
1977	2,890	162	51	703	2,176
1978	2,375	115	55	578	2,270
1979	2,787	364	57	663	5,609
1980	1,925	786	51	619	4,018
1981	1,943	382	49	663	2,494
1982	1,396	551	45	632	1,603
1983	3,173	383	47	509	1,132
1984	3,241	461	50	558	692
1985	5,798	814	46	677	7
1986	2,124	696	45	637	10
1987	1,802	844	51	574	10
1988	1,619	626	50	575	212
1989	2,783	578	51	631	169
1990	2,749	717	52	615	209
1991	3,559	178	47	611	143
1992	2,589	279	48	572	86
1993	2,737	1,513	49	567	684
1994	2,275	360	51	603	371
1995	2,645	333	50	646	237
1996	3,461	991	48	663	181
1997	3,220	90	51	686	164
1998	2,229	108	54	437	112
1999	2,253	112	54	420	22

¹ Includes deliveries for industrial use (including industrial space heating and farm use), oil company use, off-highway use, and "other" uses. Does not include use at electric utilities.

² DOE has numerous caveats on its allocation of LPG consumption to the various sectors.

³ Includes sales for agricultural use, construction use, and industrial and commercial use.

⁴ Includes industrial use, oil company use, and "other" uses.

NOTE: This table does not show the categories "asphalt and road oil" and "other petroleum products," which are consumed solely in the industrial sector. It also does not include kerosene, since the consumption has been minimal in recent years.

DOE models provide the best consumption estimates available. However, some of the more dramatic year-to-year variation in consumption levels may be due to the models themselves or to changes in the models or data sources.

SOURCE: U.S. Department of Energy, Energy Information Administration, *State Energy Data Report, Consumption Estimates, 1960-99* (DOE/EIA 0214; <http://www.eia.doe.gov/emeu/sedr/contents.html#HTML%20Tables>).

Table P10. Transportation Petroleum Product Consumption Estimates, 1960-99 (thousand barrels)

Year	Aviation Gasoline ¹	Distillate Fuel ²	Jet Fuel ³	LPG ⁴	Lubricants	Motor Gasoline ⁵	Residual Fuel ⁶
1960	1,006	2,839	265	29	137	5,972	377
1961	1,427	2,721	280	31	134	5,910	617
1962	473	2,675	311	35	141	6,747	471
1963	499	2,520	340	34	141	6,544	410
1964	340	2,705	360	26	148	6,501	307
1965	312	2,676	384	13	148	6,678	325
1966	198	2,961	441	21	153	7,148	396
1967	131	1,941	574	60	135	7,178	342
1968	65	2,356	697	73	148	7,708	243
1969	38	2,649	806	68	151	8,155	238
1970	43	3,020	649	36	154	8,407	119
1971	42	3,116	767	56	145	8,797	87
1972	94	3,408	762	78	155	9,267	63
1973	110	3,834	757	65	159	10,179	44
1974	105	4,266	780	53	152	9,922	122
1975	79	3,835	818	50	162	9,682	160
1976	94	4,101	753	50	180	10,668	141
1977	92	4,049	772	37	196	10,240	136
1978	87	4,451	699	46	211	12,064	134
1979	122	4,791	907	18	220	10,320	24
1980	159	4,759	920	45	196	9,705	0
1981	177	3,834	800	52	188	10,024	0
1982	92	3,866	625	29	172	9,671	0
1983	102	4,106	652	54	180	9,940	3
1984	77	4,540	642	69	192	9,831	2
1985	91	4,273	678	51	179	9,439	*
1986	105	4,101	867	55	175	9,445	0
1987	82	4,157	718	39	197	9,604	0
1988	107	4,192	809	48	190	9,789	0
1989	95	4,266	750	53	195	9,602	0
1990	111	4,169	708	67	201	9,630	0
1991	108	4,161	615	48	180	9,687	0
1992	75	4,705	864	35	183	10,100	0
1993	64	4,758	901	43	187	10,421	0
1994	75	5,559	855	58	195	10,479	0
1995	78	5,856	1,052	28	192	10,669	0
1996	99	5,570	999	16	186	11,070	0
1997	71	6,397	792	8	197	10,782	0
1998	102	5,734	797	62	206	11,145	0
1999	121	5,952	836	12	208	11,334	0

* Less than 0.5.

¹ Includes military and non-military use.

² Includes deliveries for military use, railroad use and highway use.

³ Non-military use only of kerosene-type jet fuel.

⁴ DOE has numerous caveats on its allocation of LPG consumption to the various sectors.

⁵ This table does not cover all uses of gasoline included in "Highway Use of Motor Fuel" in Table P11.

⁶ Includes military use and railroad use.

NOTE: DOE models provide the best consumption estimates available. However, some of the more dramatic year-to-year changes in consumption levels may be due to the models themselves or to changes in the models or data sources.

SOURCE: U.S. Department of Energy, Energy Information Administration, *State Energy Data Report, Consumption Estimates, 1960-99* (DOE/EIA 0214; <http://www.eia.doe.gov/emeu/sedr/contents.html#HTML%20Tables>).

Table P11. Motor Fuel Use, 1950-2000 (thousand gallons)

Year	Highway Use of Motor Fuel			Nonhighway Use of Motor Fuel (gasoline)	Losses Due to Evaporation, Handling, etc.	TOTAL Consumption of Motor Fuel
	Gasoline	Diesel	Subtotal			
1950	169,162	7,593	176,755	52,994	3,486	233,235
1951	185,221	9,708	194,929	43,585	3,570	242,084
1952	188,254	12,385	200,639	57,533	3,864	262,036
1953	215,163	14,172	229,335	38,281	3,906	271,522
1954	204,579	16,990	221,569	58,832	4,032	284,433
1955	211,973	17,323	229,296	60,322	3,948	293,566
1956	233,910	17,662	251,572	53,373	4,326	309,271
1957	222,648	19,969	242,617	65,271	2,898	310,786
1958	239,541	21,547	261,088	50,097	2,940	314,125
1959	239,150	26,313	265,463	64,459	3,024	332,946
1960	242,430	27,216	269,646	69,974	3,150	342,770
1961	240,490	31,255	271,745	89,218	3,360	364,323
1962	274,043	30,311	304,354	41,413	3,654	349,421
1963	267,671	33,447	301,118	46,958	3,738	351,814
1964	273,144	35,294	308,438	42,657	3,612	354,707
1965	280,705	38,879	319,584	48,872	3,906	372,362
1966	269,659	43,253	312,912	40,736	3,780	357,428
1967	300,192	40,668	340,860	44,078	3,990	388,928
1968	321,429	45,756	367,185	40,607	4,032	411,824
1969	342,954	49,868	392,822	27,902	4,074	424,798
1970	352,654	58,136	410,790	39,654	4,242	454,686
1971	372,174	61,295	433,469	33,345	4,242	471,056
1972	394,482	69,145	463,627	42,185	4,368	510,180
1973	432,272	76,954	509,226	35,933	4,662	549,821
1974	412,004	72,955	484,959	31,842	4,452	521,253
1975	404,957	72,682	477,639	45,256	4,494	527,389
1976	449,092	87,051	536,143	46,148	4,998	587,289
1977	431,617	89,381	520,998	42,667	4,452	568,117
1978	511,119	100,375	611,494	38,123	5,208	654,825
1979	443,580	103,756	547,336	44,112	5,250	596,698
1980	416,511	98,615	515,126	40,788	4,662	560,576
1981	423,780	108,849	532,629	44,001	4,704	581,334
1982	406,462	110,864	517,326	40,371	4,410	562,107
1983	418,919	105,234	524,153	33,306	4,494	561,953
1984	416,324	117,012	533,336	34,828	-	568,164
1985	403,929	109,043	512,972	37,675	-	550,647
1986	404,386	107,192	511,578	36,006	-	547,584
1987	407,673	108,341	516,014	33,187	-	549,201
1988	412,126	117,389	529,515	33,710	-	563,225
1989	408,306	120,917	529,223	35,714	-	564,937
1990	410,718	125,346	536,064	36,646	-	572,710
1991	409,896	116,176	526,072	36,365	-	562,437
1992	432,413	133,926	566,339	32,650	-	598,989
1993	441,553	139,443	580,996	29,807	-	610,803
1994	444,618	156,703	601,321	32,358	-	633,679
1995	447,134	159,632	606,766	34,258	-	641,024
1996	466,331	146,177	612,508	36,169	-	648,677
1997	454,226	175,736	629,962	35,250	-	665,212
1998	469,369	172,711	642,080	26,862	-	668,942
1999	480,754	185,212	665,966	26,486	-	692,452
2000	469,683	190,450	660,133	26,394	-	686,527

NOTE: Motor fuel is defined by the US Department of Transportation as all gasoline covered by state motor fuel tax laws plus diesel fuel and LPG used in the propulsion of motor vehicles. (The Montana data do not include any LPG.) Gasohol is included with gasoline. Military use of motor fuel and aviation jet fuel use are excluded from DOT data. Figures for highway use of fuels may be understated because of refunds given on fuel for nonhighway use such as agriculture.

Starting in 1984, losses due to evaporation and handling are no longer calculated by FHWA. Total consumption of motor fuel from 1984-2000, therefore, does not include this figure. To compare the total for these years to the total for the previous years, the losses should be subtracted from the 1950-83 total consumption column.

SOURCE: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics*, annual reports, 1950-2000

Table P12a. Monthly Sales of Gasoline 1990-2002 (1000 gallons/day)¹

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (1,000 gal.)
1990	938	1,063	1,118	1,191	1,320	1,472	1,705	1,676	1,347	1,228	1,262	1,058	468,198
1991	1,058	948	1,108	1,196	1,313	1,389	1,736	1,668	1,302	1,384	1,185	1,091	468,783
1992	1,094	1,132	1,103	1,222	1,308	1,441	1,559	1,551	1,308	1,281	1,158	1,168	467,654
1993	996	1,071	1,104	1,200	1,237	1,611	1,350	1,553	1,396	1,244	1,155	1,081	456,375
1994	988	1,053	1,151	1,168	1,253	1,537	1,440	1,581	1,309	1,318	1,226	1,135	461,525
1995	1,050	1,101	1,193	1,204	1,315	1,449	1,615	1,613	1,373	1,335	1,201	1,147	474,907
1996	1,080	1,108	1,140	1,310	1,298	1,465	1,693	1,617	1,357	1,315	1,223	1,126	480,130
1997	1,090	1,114	1,139	1,245	1,406	1,505	1,729	1,735	1,459	1,415	1,294	1,258	499,202
1998	1,090	1,148	1,246	1,316	1,380	1,532	1,746	1,633	1,438	1,373	1,261	1,238	499,388
1999	1,106	1,216	1,385	1,258	1,313	1,533	1,777	1,803	1,597	1,470	1,428	1,417	526,901
2000	1,074	1,256	1,311	1,237	1,411	1,613	1,674	1,689	1,437	1,334	1,274	1,188	503,401
2001	1,140	1,159	1,216	1,330	1,409	1,464	1,691	1,717	1,427	1,428	1,309	1,254	503,828
2002	1,147	1,181	1,245	1,239	1,392	1,482	1,716	1,670					
average	1059	1114	1184	1240	1330	1501	1643	1653	1396	1344	1248	1180	
median	1077	1111	1146	1230	1314	1489	1692	1651	1385	1335	1244	1157	

¹All sales by prime suppliers, which are firms that produce, import or transport gasoline across State boundaries and local marketing areas, and sell the product to local distributors, local retailers or end users for all purposes.

Source: US Department of Energy, Energy Information Administration EIA-782C data base. This information also appears in *Petroleum Monthly*, Table 48.

Table 12b. Monthly Sales of Diesel 1990-2002 (1000 gallons/day)^{1,2}

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL (1,000 gal.)
1990	480	580		684	645	653	719	800	708	647	526	369	206,832
1991	486	421	610		621	684	821		733	726	461	498	184,768
1992	532	578	707	698	666	593	673	803	793	648	515	521	235,727
1993	438	565	639	723	644	717		849	840	738	540	604	221,705
1994	455	583	658	741	742	760	697	842	816	722	656	606	251,892
1995	635	662	745	810	780	769	796	988	892	741	639	530	273,478
1996	564	583	761	885	759	822	886	939	750	818	614	528	271,912
1997	494	622	698	910	866	834	937	1,008	948	890	696	641	290,590
1998	576	684	765	857	755	772	860	893	818	801	609	555	272,123
1999	591	637	830	795	817	856	923	980	938	866	732	833	298,458
2000	663	731	840	806	858	858	869	992	878	865	830	615	299,100
2001	630	773	780	1,028	913	839	964	1,135	919	874	754	690	313,365
2002	719	687	746	779	812	846	974	950					
average	545	618	730	812	755	763	831	930	836	778	631	582	
median	548	603	745	806	757	770	860	939	829	771	626	579	

¹All sales by prime suppliers, which are firms that produce, import or transport gasoline across State boundaries and local marketing areas, and sell the product to local distributors, local retailers or end users for all purposes.

²Data includes very minor amounts of #2 heating oil

Source: US Department of Energy, Energy Information Administration EIA-782C data base. This information also appears in *Petroleum Monthly*, Table 50.

Table P13. Average Retail Price of Gasoline, 1990-2002 (cents/gallon)¹

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1990	109.2	107.7	108.5	109.4	110.9	112.2	112.6	130.0	138.2	144.1	142.8	139.5
1991	132.2	126.0	114.3	114.1	117.2	118.9	118.7	118.7	119.2	118.5	118.0	115.1
1992	109.6	105.2	107.3	110.7	118.8	127.3	131.7	131.5	129.6	127.8	126.0	121.6
1993	115.3	111.8	112.6	115.2	120.2	122.4	124.6	124.5	126.2	128.3	128.1	123.9
1994	116.5	114.6	114.2	116.1	124.4	128.5	133.0	133.2	134.1	132.3	129.7	127.3
1995	122.6	122.0	120.2	122.9	129.4	129.0	127.0	125.7	127.3	127.0	123.8	122.1
1996	121.7	125.3	130.8	140.1	141.1	139.6	137.7		142.1	142.1	139.9	138.5
1997	138.4	137.3	138.1	137.5	137.4	136.6	135.7	136.9	137.7	138.9	137.4	133.0
1998	129.1	124.5	121.3	122.1	121.9	121.3	121.8	121.5	121.4	119.0	114.8	106.7
1999	100.2	99.4	104.4		130.1	130.3	136.8	138.8	140.7	139.0	141.7	
2000	139.5	147.0	161.2	159.5	158.9	159.4	159.6	159.6	163.5	172.7	168.9	166.2
2001	151.1	150.5	147.2	154.8	169.3	161.2	154.0	157.7	157.6	147.5	128.9	119.2
2002		121.8	137.2		147.5	147.7	148.3	147.6				
Average	123.8	122.6	123.3	127.5	131.6	132.2	132.8	134.4	136.5	136.4	133.3	128.5
Median	122.2	123.3	117.3	122.1	126.9	128.8	132.4	131.5	135.9	135.6	129.3	123.9

¹State-wide average price at the pump for all grades, in nominal dollars. Some data are missing.

Source: U.S. Department of Energy, Energy Information Agency, Form EIA-782A and Form EIA-782B data bases; also appears in *Petroleum Monthly*, Table 31.

Table P14. Estimated Price of Motor Fuel and Motor Fuel Taxes, 1970-2001

YEAR	State Gasoline			Federal Gasoline			State Diesel			Federal Diesel			State Gasohol			Federal Gasohol		
	Gasoline (\$/gallon)	Tax (¢/gallon)	Date Changed	Gasoline (¢/gallon)	Tax (¢/gallon)	Date Changed	Diesel (\$/gallon)	Tax (¢/gallon)	Date Changed	Diesel (¢/gallon)	Tax (¢/gallon)	Date Changed	Gasohol (¢/gallon)	Tax (¢/gallon)	Date Changed	Gasohol (¢/gallon)	Tax (¢/gallon)	Date Changed
1970	0.36	7		4			0.21	9		4								
1971	0.37	7		4			0.22	9		4								
1972	0.35	7		4			0.22	9		4								
1973	0.40	7		4			0.25	9		4								
1974	0.54	7		4			0.40	9		4								
1975	0.60	7.75	June 1	4			0.41	9.75	June 1	4								
1976	0.61	7.75		4			0.42	9.75		4								
1977	0.66	8	July 1	4			0.47	10	July 1	4								
1978	0.69	8		4			0.49	10		4								
1979	0.88	9	July 1	4			0.71	11	July 1	4				2	April 1	0 ¹	Jan. 1	
1980	1.07	9		4			1.03	11		4				2		0		
1981	1.31	9		4			1.20	11		4				2		0		
1982	1.30	9		4			1.17	11		4				2		0		
1983	1.15	15	July 1	9	April 1		0.99	17	July 1	9	April 1			15	July 1	4	1-Apr	
1984	1.16	15		9			1.00	17		15	Aug. 1			15		4		
1985	1.16	15		9			0.94	17		15				15		3	Jan. 1	
1986	0.90	17	Aug. 1	9			0.95	17		15				17	Aug. 1	3		
1987	0.98	20	July 1	9.1	Jan. 1		0.99	20	July 1	15.1	Jan. 1			20	July 1	3.1	Jan. 1	
1988	0.99	20		9.1			1.02	20		15.1				20		3.1		
1989	1.10	20		9.1			1.13	20		15.1				20		3.1		
1990	1.22	20		14.1	Dec. 1		1.28	20		20.1	Dec. 1			20		8.7 ²	Dec. 1	
1991	1.19	20		14.1			1.24	20		20.1				20		8.7 ²		
1992	1.22	21	July 1	14.1			1.23	21	July 1	20.1				21	July 1	8.7 ²		
1993	1.22	24	July 1	18.4	Oct. 1		1.24	24	July 1	24.4	Oct. 1			24	July 1	13 ²	Oct. 1	
1994	1.27	27	July 1	18.4			1.24	27.75	July 1	24.4				27	July 1	13 ²		
1995	1.25	27		18.4			1.25	27.75		24.4				27		13 ²		
1996	1.37	27		18.3	Jan. 1		1.40	27.75		24.3	Jan. 1			27		12.9 ²	Jan. 1	
1997	1.37	27		18.4	Oct. 1		1.20	27.75		24.4	Oct. 1			27		13 ²	Oct. 1	
1998	1.20	27		18.4			1.31	27.75		24.4				27		13 ²		
1999	1.31	27		18.4			1.30	27.75		24.4				27		13 ²		
2000	1.60	27		18.4			NA	27.75		24.4				27		13 ²		
2001	1.51	27		18.4			NA	27.75		24.4				27		13 ²		

¹ Gasohol was not defined in federal tax law until 1979. Products later defined as gasohol (10 percent ethanol by volume) were taxable as gasoline until 1979. From 1979 to 1983, gasohol was exempt from gasoline tax. Price series data on gasohol were not available.

² Blends using methanol, and amounts of ethanol between 5.7 and 10 percent, were taxed at lower rates.

NOTES: Price is average of all grades, in nominal dollars. Gasoline and diesel prices include state and federal per gallon fuel taxes. All prices except 1984-2001 gasoline prices are derived from the *State Energy Price and Expenditure Report*, which reports prices in \$/million Btu. The source document omits federal diesel fuel tax from 1970-82; therefore, the federal tax has been added and is included in the 1970-82 diesel prices listed above. See the source document for information on changes over time in the data sources and in the estimation methods used. In particular, note that diesel prices from 1984 forward are estimated as the ratio of the PAD IV diesel fuel price to the PAD IV motor gasoline price times the State motor gasoline price, plus federal and state per gallon taxes. PAD IV includes Colorado, Idaho, Montana, Utah and Wyoming.

SOURCES: Gasoline prices for 1984-2001 are from U.S. Department of Energy, Energy Information Administration, *Petroleum Marketing Annual*. Refiner/Reseller Motor Gasoline Prices by Grade, Sales to End Users Through Company Outlets, annual reports, 1985-2001 (EIA-0487). All other fuel prices are from U.S. Department of Energy, Energy Information Administration, *State Energy Price and Expenditure Report*, annual reports 1970-99 (EIA-0376). Tax figures are from U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics*, annual reports 1970-2000.

